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REMARKS

In the Office Action dated August 13, 2003, the Examiner objects to the drawings. The Examiner allows claims 16, 17, 22 and 26 and objects to claims 10, 15, 18-20, 25, 27 and 28. The Examiner rejects claims 1-9, 11-14, 21 and 23. The undersigned wishes to thank Examiner Elkassabgi for her courtesies during a telephonic interview with Applicants' attorney, Michelle L. Knight (Reg. No. 47711), on November 8, 2003. In that call, Examiner Elkassabgi clarified inconsistencies between the Office Action Summary and the Detailed Action with respect to the claims and drawing figures, which clarifications are discussed herein where appropriate. With this Amendment, no claims have been amended, canceled or added. After entry of this Amendment, claims 1-28 remain pending in the Application. Reconsideration is respectfully requested.

The Office Action Summary indicates that the Examiner objects to the drawing figures submitted 04/02/03, but the Detailed Action states that the drawings are acceptable. Examiner Elkassabgi confirmed that there are no objections to the drawing figures submitted 04/02/03.

The Examiner rejects claims 15-17, 22 and 26 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner says that the first constant radius is not described in the specification in such a way as to reasonably convey to one skilled in the relevant art what it is. The Examiner assumed for purposes of examination that the first constant radius is the outer circumferential radius of the rotor yoke. It is respectfully submitted that there is no "first constant radius" in claim 22. In claims 15-17 and 26, the first constant radius is not the outer circumferential radius of the rotor yoke as suggested by the Examiner. It is respectfully submitted that these claims describe the permanent magnet ring as having a radial edge opposed to the rotor yoke, the radial edge having a first constant radius. This is shown in Fig. 3, by example, where the radial edge of the permanent magnet ring opposed to the rotor yoke has a constant radius. It is respectfully submitted that given the accepted meaning of radius, the first constant radius is described in sufficient detail in the specification, drawing and claims. Withdrawal of the Examiner's rejection under 35 U.S.C. § 112, first paragraph, is respectfully requested.

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The Examiner rejects claim 1 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that the Applicants regard as the invention. The Examiner states that "the depressed portions along a radially-outer peripheral edge" does not clearly describe which edge the Applicants are claiming, whether it is the rotor yoke or the permanent magnet. The Examiner suggests that the Applicants clearly state which edge in the claim language. The Applicants have clearly included the feature that one of the rotor yoke and the permanent magnet ring is an annular member including depressed portions along a radially-outer peripheral edge. Thus, the radially-outer peripheral edge can belong to either the rotor yoke or the permanent magnet ring, but not both. The Applicants do not need to state which edge in the claim language in any additional detail to meet the requirements of 35 U.S.C. § 112, second paragraph, because it is clear and definite as written. It is respectfully requested that the Examiner withdraw the rejection.

The Examiner rejects claims 15-17, 22 and 26 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that the Applicants regard as the invention. The Examiner goes on to state that "the plurality of depressions shaped to the motor" and "a first constant radius" in claims 15-17 and 26 need to be described in full, clear, concise and exact terms as to the shape of the depressions. It is respectfully submitted that the term "a first constant radius" was addressed in response to the Examiner's rejection of these claims under 35 U.S.C. § 112, first paragraph. The first constant radius is not described in claim 22 and in claims 15-17 and 26 it is clear and definite, meeting the requirements of 35 U.S.C. § 112, second paragraph. With respect to the "plurality of depressions," claims 1 and 22 describe depressed portions shaped so the motor produces a sinusoidal flux density during operation, and claims 15-17 and 26 describe a plurality of depressions shaped so the motor produces a sinusoidal flux density during operation. It is respectfully submitted that these are full, clear, concise and exact terms as to the shape of the depressions or depressed portions. The Applicants have provided examples of shapes that produce a sinusoidal flux density during operation of the motor and a description of how the shapes are determined in paragraph [0029]. It is respectfully submitted that no additional

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description in the claims is needed. Withdrawal of the Examiner's rejections under 35 U.S.C. § 112, second paragraph, is respectfully requested.

With the withdrawal of these rejections under 35 U.S.C. § 112, first and second paragraphs, it is respectfully submitted that claims 15-20, 22 and 25-28 are in suitable condition for allowance.

The Examiner rejects claims 1, 2, 6-9 and 11-14 under 35 U.S.C. § 103(a) as being unpatentable over Buckley et al. (4,782,272) in view of Kliman et al. (5,345,130) and Iwamatsu et al. (5,302,876). The Examiner clarified during the telephonic interview with Ms. Knight that claims 3-5, 21, 23 and 24 are also rejected under 35 U.S.C. § 103(a), despite the indication of allowability of claim 24 on page 5 of the Detailed Action. The Examiner also indicated that the indication of allowable subject matter in claim 14 on page 5 was incorrect. It is respectfully submitted that the cited references, either individually or in any permissible combination, fail to teach or suggest all the features of claim 1 and its dependent claims.

First, it is respectfully submitted that the Examiner has misstated the teachings of Buckley et al. Buckley et al. neither teaches nor suggests the feature of claim 1 of a permanent magnet ring mounted on the rotor yoke. The prior art rotor of Fig. 1 and the rotor of Fig. 6 include a series of permanent magnets or poles 3 held in position against radial displacement by a circumferential band 5 (shown only in Fig. 1). Buckley et al. does not teach a permanent magnet ring being an annular member including depressed portions along a radially-outer peripheral edge. The discrete magnets 3 are merely placed adjacent to one another; no depressions or depressed portions exist in an annular member. Further, Buckley et al. teaches that the structure of Fig. 1 results in a constant torque for constant current over the 120 electrical degree arc of movement, a trapezoidal-type drive.

The Examiner has also cited no motivation in the art to combine Buckley et al. with either Kliman et al. or Iwamatsu et al. The inclusion of Kliman et al. fails to cure the described deficiencies in Buckley et al. because, even if one cited Kliman et al. for its teaching of a permanent magnet ring as shown in Fig. 5, Kliman et al. teaches that the cut-outs 32 of the rotor 30 are optimized to result in "a substantially trapezoidal flux distribution that is substantially flat over approximately the central 120° of each respective 180° half-cycle thereof."

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(Kliman et al., Abstract; col. 2, ll. 61-65; col. 3, ll. 2-4; claim 1). There is no teaching or suggestion in Kliman et al. or Buckley et al. that the substitution of a permanent magnet ring for the discrete permanent magnets 3 of Buckley et al. would result in anything other than a trapezoidal flux density curve. Kliman et al. teaches that a rotor yoke 40 must be substantially square with rounded edges having permanent magnet material molded onto the square-shaped rotor core 40 as shown in Figs. 6a and 6b to produce a sinusoidal flux density. (Kliman et al., col. 4, ll. 3-9). The addition of Iwamatsu et al. to the Examiner's combination of Buckley et al. and Kliman et al., even if permissible, does not teach or suggest all of the features of claim 1 and its dependent claims 2-9, 11-14, 21, 23 and 24.

It is further submitted that the Examiner has failed to point out where in the references the features of claims 2-5, 21, 23 and 24 exist, failing to make a *prima facie* case of obviousness. It is respectfully submitted that each of claims 2-5, 21, 23 and 24 is patentable in its own right and patentable due to dependence from claim 1.

In addition to the foregoing, it is respectfully submitted that adding skew to a rotor yoke as claimed by claim 3 is taught away from by Buckley et al. and Kliman et al. as skew is conducive to the production of a sinusoidal flux density by a motor during operation, opposite to Buckley et al. and Fig. 5 of Kliman et al., which produce a trapezoidal flux density curve. Thus, in addition to the reasons set forth with respect to claim 1, the cited combination fails to teach or suggest all of the features of Applicants' claim 3 and its dependent claims 4 and 5.

With respect to claim 4, even if Kliman et al. teaches cut-outs 32 in a rotor yoke 30, there is no teaching or suggestion to include this feature in Buckley et al. As mentioned previously, the cut-outs 32 of Kliman et al. with a permanent magnet ring as shown in Fig. 5 produce a trapezoidal flux density curve. Iwamatsu et al. does not address these issues. The invention of Claim 4 is not rendered obvious by the cited combination. The invention of claim 5 is also not rendered obvious by the cited combination because Buckley et al. has no depressed portions in a permanent magnet ring and neither Kliman et al. and Iwamatsu et al. teaches or suggests this feature. Since none teach or suggest this feature, the combination cannot have it.

The Examiner states that claim 6, 11, 12 and 14 are taught by Buckley et al. However, it is respectfully submitted that each of these claims is allowable over the prior art of

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record. With respect to claim 6 and its dependent claim 7, Buckley et al. does not teach or suggest depressed portions, so it cannot teach or suggest that each of the plurality of poles is tapered along each depressed portion. Nor does Buckley et al. teach or suggest the feature of claim 7 wherein the magnet ring includes the depressed portions or the feature of claim 12 wherein each of the depressed portions forms an apex of a triangle or the feature of claim 14 wherein each of the depressed portions is uniform in shape; Buckley et al. has no depressed portions. With respect to claim 11, Buckley et al. does not teach a magnet ring, so it cannot teach a magnet ring with six poles. The combination of Buckley et al. with Kliman et al. and Iwamatsu et al. fails to teach or suggest all of these features and the features of independent claim 1 from which each claim depends. Thus, it is respectfully submitted that each of claims 6, 7, 11, 12 and 14 is allowable over the prior art of record.

The Examiner combines Iwamatsu et al. with Buckley et al. and Kliman et al. in an effort to render claim 8 unpatentable. The Examiner selects Iwamatsu et al. for its teaching of a rotor core comprising a stack of laminations. Picking and choosing only selected teachings of the prior art to deprecate the invention is not permissible without some motivation. The Examiner has cited no such motivation for including this feature of Iwamatsu et al. in the combination of Buckley et al. and Kliman et al. Thus, claim 8 is allowable due to the features therein and based upon dependency from claim 1.

The Examiner states that the feature of claim 9 that the permanent magnet ring is a pressed permanent magnet ring is a method of forming the device, so the Examiner gives this feature no patentable weight. The Applicants respectfully disagree and submit that the Examiner should grant the feature patentable weight. Since none of the cited references teach or suggest this feature, it is respectfully submitted that claim 9 is also allowable over the prior art of record.

The Examiner states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to choose a suitable material for the magnet ring, making the feature of claim 13 wherein the magnet ring comprises one of a rare-earth magnetic material and a ceramic magnetic material obvious in the combination of Buckley et al., Kliman et al. and Iwamatsu et al. It is respectfully submitted that the Examiner must show that these were known suitable materials at the time or the rejection is not proper. In any case, the cited

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combination fails to teach or suggest the features of claim 1, from which claim 13 depends.

Thus, claim 13 is also allowable over the prior art of record.

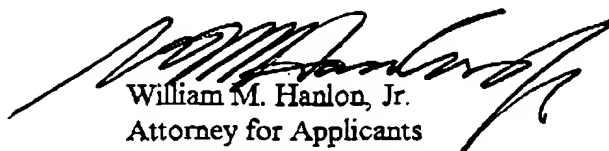
The Applicants gratefully acknowledge the indication of allowable subject matter in claim 10. Because of the dependence of claim 10 from claim 1, which the Applicants have argued is allowable, the Applicants have not amended claim 10 to independent form.

It is respectfully submitted that this Amendment traverses and overcomes all of the Examiner's objections and rejections to the application as originally filed. It is further submitted that this Amendment has antecedent basis in the application as originally filed, including the specification, claims and drawings, and that this Amendment does not add any new subject matter to the application. Reconsideration of the application as amended is requested. It is respectfully submitted that this Amendment places the application in suitable condition for allowance; notice of which is requested.

If the Examiner feels that prosecution of the present application can be expedited by way of an Examiner's amendment, the Examiner is invited to contact the Applicants' attorney at the telephone number listed below.

Respectfully submitted,

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